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<110> KEITH, TIM
LITTLE, RANDALL D.
EERDEWEGH, PAUL VAN
DUPUIS, JOSEE
DEL MASTRO, RICHARD L.
SIMON, JASON
ALLEN, KRISTINA
PANDIT, SUNIL

<120> NOVEL HUMAN GENES RELATING TO RESPIRATORY DISEASES AND OBESITY

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 Leu Ser Leu Gln Ala Gly Phe Gly Gly Gly Ala Gly Ser Pro Ala Ala
 325 330 335
 Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg Arg
 340 345 350
 Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu Asp
 355 360 365
 Leu Pro Pro Trp Thr Trp Glu Pro Pro Gly Ser Ser His Ser Gly Lys
 370 375 380
 Glu Gly Ser Gly His Gly Gly Arg Pro Gly Pro Ile Pro Val Pro Trp
 385 390 395 400
 Pro Phe Phe Leu Leu Pro Val Cys His Cys Pro Gly Ala Phe Ala Pro
 405 410 415
 Ala Phe Pro Leu Ser Arg Gln Gly Phe Ser Ser Leu Ala Arg Leu Val
 420 425 430
 Ser Asn Ser
 435

<210> 4
 <211> 1441
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 <213> Homo sapiens

<220>
 <221> CDS
 <222> (3)..(1166)

<400> 4
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 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg
 1 5 10 15
 gct gcc cac gtc gtc tcc agg aag gga ccc ggg tcc acg agc tgc cca 95
 Ala Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro
 20 25 30
 cgt cct ctc cag gaa agg acc cgg gtc cac gag ctg gcc acg tcc tct 143
 Arg Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Cys Ser
 35 40 45

gca gga agg gac ccc ggg tcc acg agc tgc cca cgt cct ctc cag gaa 191
 Ala Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu
 50 55 60

ggg acc ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc 239
 Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro
 65 70 75

cgg gtc cac gag ctg ccc acg tcc tct cca gga agg gac ccc ggg tcc 287
 Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser
 80 85 90 95

acg aac tgc cca cgt cct ctc cag gaa ggg acc ccg ggt tca cga gct 335
 Thr Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 100 105 110

gcc cac gtc ctc tcc agg agg gga cac cgg gtt cac gag ctg ccc acg 383
 Ala His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr
 115 120 125

ccc tct cca gga agg gac ccc ggg ttc atg agc tgc cca cgt cct ctc 431
 Pro Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu
 130 135 140

cag gaa ggg acc ccg gtc cac gaa ctg ccc acg ccc tct cca gga ggg 479
 Gln Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly
 145 150 155

gac ccg ggt cca cga gct gcc cac gtc gtc aac ggg aag gga ccc ggg 527
 Asp Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly
 160 165 170 175

tcc acg agc tgc cca cgt cct ctc cag gaa ggg acc ccg gtc cac gaa 575
 Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu
 180 185 190

ctg ccc acg cgc tct cca gga ggg gac acc ggg ttc acg agc tgc cca 623
 Leu Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro
 195 200 205

cgc cct ctc cag gaa ggg acc ccg ggt tca cga gct gcc cac gtc ctc 671
 Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu
 210 215 220

tcc agg agg gga cac ccg gtt cac gag ctg ccc acg tcc tct cca gga 719
 Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly
 225 230 235

ggg gac acc ggg ttc acg agc tgc cca cgc cct ctc cag gag ggg aca 767
 Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr
 240 245 250 255

ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc ggg tcc 815
 Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser
 260 265 270

acg agc tgc cca cgt cct ctc cag gag ggg aca ccg ggt tca cga gct 863
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 275 280 285
 gcc cac gca ctt tcc agg aag gga ccc cgg gtt cag gtc tcc tgc cgg 911
 Ala His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg
 290 295 300
 ccc aca tcg tgc ctt tgt gta aat cag aag aaa gat gag gaa cag gcc 959
 Pro Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala
 305 310 315
 ctc ctc tct ctc cag gca ggc ttt ggt gga ggg gct gga tct cct gcc 1007
 Leu Leu Ser Leu Gln Ala Gly Phe Gly Gly Ala Gly Ser Pro Ala
 320 325 330 335
 gca cct tcc ctg gca ggg cac cct gtg ctt gag ccc cag aac tgc agg 1055
 Ala Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg
 340 345 350
 cgg ccg gca gag aag ggg tcc atg atg gcg cct cgg tgc gca gcc ttg 1103
 Arg Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu
 355 360 365
 gac ctg ccc cca tgg acc tgg aga cag ggt ttc tcc tca ttg gcc agg 1151
 Asp Leu Pro Pro Trp Thr Trp Arg Gln Gly Phe Ser Ser Leu Ala Arg
 370 375 380
 ctg gtc tcg aac tcc tgacctcaga cgatccacct gcctcagcct cccgaagtgt 1206
 Leu Val Ser Asn Ser
 385
 tgggattaca ggcacgagcc actgtgcccc gccatcattc ctttttactg ctgactaata 1266
 gtctgctgtg tgaatccacc gctagaaacc cactcatcag ttgatgggtca tgtgggttgc 1326
 ttctgctatt cgcttattat gaacagtgtt ggaataaacg ttctgtgtca ctcttgggca 1386
 tacgcctagg agtgggaactg ctgggtcaaaa aaaaaaaaaa aaaaaaaaaa aaaaa 1441

<210> 5
 <211> 388
 <212> PRT
 <213> Homo sapiens

<400> 5
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 1 5 10 15
 Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro Arg
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 Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Ser Ser Ala
 35 40 45
 Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly
 50 55 60

Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Arg
 65 70 75 80
 Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser Thr
 85 90 95
 Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 100 105 110
 His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Pro
 115 120 125
 Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu Gln
 130 135 140
 Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly Asp
 145 150 155 160
 Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly Ser
 165 170 175
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu Leu
 180 185 190
 Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg
 195 200 205
 Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser
 210 215 220
 Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Gly
 225 230 235 240
 Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro
 245 250 255
 Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser Thr
 260 265 270
 Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 275 280 285
 His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg Pro
 290 295 300
 Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala Leu
 305 310 315 320
 Leu Ser Leu Gln Ala Gly Phe Gly Gly Gly Ala Gly Ser Pro Ala Ala
 325 330 335
 Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg Arg
 340 345 350
 Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu Asp
 355 360 365

Leu Pro Pro Trp Thr Trp Arg Gln Gly Phe Ser Ser Leu Ala Arg Leu
 370 375 380

Val Ser Asn Ser
 385

<210> 6
 <211> 1576
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (3)..(1190)

<400> 6
 tc acg agc tgc cca cgt cct ctc cag gaa ggg acc ccg ggt tca cga 47
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg
 1 5 10 15
 gct gcc cac gtc gtc tcc agg aag gga ccc ggg tcc acg agc tgc cca 95
 Ala Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro
 20 25 30
 cgt cct ctc cag gaa agg acc cgg gtc cac gag ctg gcc acg tcc tct 143
 Arg Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Ser Ser
 35 40 45
 gca gga agg gac ccc ggg tcc acg agc tgc cca cgt cct ctc cag gaa 191
 Ala Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu
 50 55 60
 ggg acc ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc 239
 Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro
 65 70 75
 cgg gtc cac gag ctg ccc acg tcc tct cca gga agg gac ccc ggg tcc 287
 Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser
 80 85 90 95
 acg aac tgc cca cgt cct ctc cag gaa ggg acc ccg ggt tca cga gct 335
 Thr Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 100 105 110
 gcc cac gtc ctc tcc agg agg gga cac cgg gtt cac gag ctg ccc acg 383
 Ala His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr
 115 120 125
 ccc tct cca gga agg gac ccc ggg ttc atg agc tgc cca cgt cct ctc 431
 Pro Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu
 130 135 140
 cag gaa ggg acc cgg gtc cac gaa ctg ccc acg ccc tct cca gga ggg 479
 Gln Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly
 145 150 155

gac ccg ggt cca cga gct gcc cac gtc gtc aac ggg aag gga ccc ggg 527
 Asp Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly
 160 165 170 175

tcc acg agc tgc cca cgt cct ctc cag gaa ggg acc cgg gtc cac gaa 575
 Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu
 180 185 190

ctg ccc acg cgc tct cca gga ggg gac acc ggg ttc acg agc tgc cca 623
 Leu Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro
 195 200 205

cgc cct ctc cag gaa ggg acc ccg ggt tca cga gct gcc cac gtc ctc 671
 Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu
 210 215 220

tcc agg agg gga cac cgg gtt cac gag ctg ccc acg tcc tct cca gga 719
 Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly
 225 230 235

ggg gac acc ggg ttc acg agc tgc cca cgc cct ctc cag gag ggg aca 767
 Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr
 240 245 250 255

ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc ggg tcc 815
 Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser
 260 265 270

acg agc tgc cca cgt cct ctc cag gag ggg aca ccg ggt tca cga gct 863
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 275 280 285

gcc cac gca ctt tcc agg aag gga ccc cgg gtt cag gtc tcc tgc cgg 911
 Ala His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg
 290 295 300

ccc aca tcg tgc ctt tgt gta aat cag aag aaa gat gag gaa cag gcc 959
 Pro Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala
 305 310 315

ctc ctc tct ctc cag gca ggc ttt ggt gga ggg gct gga tct cct gcc 1007
 Leu Leu Ser Leu Gln Ala Gly Phe Gly Gly Gly Ala Gly Ser Pro Ala
 320 325 330 335

gca cct tcc ctg gca ggg cac cct gtg ctt gag ccc cag aac tgc agg 1055
 Ala Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg
 340 345 350

cgg ccg gca gag aag ggg tcc atg atg gcg cct cgg tgc gca gcc ttg 1103
 Arg Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu
 355 360 365

gac ctg ccc cca tgg acc tgg gaa cct ccc ggc tct tcc cac tcg gga 1151
 Asp Leu Pro Pro Trp Thr Trp Glu Pro Pro Gly Ser Ser His Ser Gly
 370 375 380

aag gaa ggc tct ggg cat gga gct tta ttg agg tat agt tgacaattca 1200
 Lys Glu Gly Ser Gly His Gly Ala Leu Leu Arg Tyr Ser
 385 390 395
 ggacggtgtg cactcaaggt atgcagcatc acaacctgac acacgtaggc attgtgaaat 1260
 ggtccccaca attgggctaa ttaacacacc catcacctta catgggttact tctttctgtg 1320
 gtgagaacac taaattttta atagaggaca cacagcctgg gcaacatagt gagacctgt 1380
 ctctacaaat ataaaaaaat tatctggacg tgggtggtgca cacctgtggt cccagctact 1440
 tgggaagctg aggctggaga atcacttgag cctgggaggc ggaggttgcg gtgcactcca 1500
 gcctgggcga cagagggagg ccctatctca aaataaataa ataaaggaca cattcttctc 1560
 aaaaaaaaaa aaaaaa 1576

<210> 7
 <211> 396
 <212> PRT
 <213> Homo sapiens

<400> 7
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 1 5 10 15
 Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro Arg
 20 25 30
 Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Ser Ser Ala
 35 40 45
 Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly
 50 55 60
 Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Arg
 65 70 75 80
 Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser Thr
 85 90 95
 Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 100 105 110
 His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Pro
 115 120 125
 Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu Gln
 130 135 140
 Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly Asp
 145 150 155 160
 Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly Ser
 165 170 175

Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu Leu
 180 185 190
 Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg
 195 200 205
 Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser
 210 215 220
 Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Gly
 225 230 235 240
 Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro
 245 250 255
 Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser Thr
 260 265 270
 Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 275 280 285
 His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg Pro
 290 295 300
 Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala Leu
 305 310 315 320
 Leu Ser Leu Gln Ala Gly Phe Gly Gly Gly Ala Gly Ser Pro Ala Ala
 325 330 335
 Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg Arg
 340 345 350
 Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu Asp
 355 360 365
 Leu Pro Pro Trp Thr Trp Glu Pro Pro Gly Ser Ser His Ser Gly Lys
 370 375 380
 Glu Gly Ser Gly His Gly Ala Leu Leu Arg Tyr Ser
 385 390 395

<210> 8
 <211> 2010
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (3)..(1244)

<400> 8
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 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg
 1 5 10 15

gct gcc cac gtc gtc tcc agg aag gga ccc ggg tcc acg agc tgc cca 95
 Ala Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro
 20 25 30

cgt cct ctc cag gaa agg acc cgg gtc cac gag ctg gcc acg tcc tct 143
 Arg Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Ser Ser
 35 40 45

gca gga agg gac ccc ggg tcc acg agc tgc cca cgt cct ctc cag gaa 191
 Ala Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu
 50 55 60

ggg acc ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc 239
 Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro
 65 70 75

cgg gtc cac gag ctg ccc acg tcc tct cca gga agg gac ccc ggg tcc 287
 Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser
 80 85 90 95

acg aac tgc cca cgt cct ctc cag gaa ggg acc ccg ggt tca cga gct 335
 Thr Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 100 105 110

gcc cac gtc ctc tcc agg agg gga cac cgg gtt cac gag ctg ccc acg 383
 Ala His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr
 115 120 125

ccc tct cca gga agg gac ccc ggg ttc atg agc tgc cca cgt cct ctc 431
 Pro Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu
 130 135 140

cag gaa ggg acc cgg gtc cac gaa ctg ccc acg ccc tct cca gga ggg 479
 Gln Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly
 145 150 155

gac ccg ggt cca cga gct gcc cac gtc gtc aac ggg aag gga ccc ggg 527
 Asp Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly
 160 165 170 175

tcc acg agc tgc cca cgt cct ctc cag gaa ggg acc cgg gtc cac gaa 575
 Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu
 180 185 190

ctg ccc acg cgc tct cca gga ggg gac acc ggg ttc acg agc tgc cca 623
 Leu Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro
 195 200 205

cgc cct ctc cag gaa ggg acc ccg ggt tca cga gct gcc cac gtc ctc 671
 Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu
 210 215 220

tcc agg agg gga cac cgg gtt cac gag ctg ccc acg tcc tct cca gga 719
 Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly
 225 230 235

ggg gac acc ggg ttc acg agc tgc cca cgc cct ctc cag gag ggg aca 767
 Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr
 240 245 250 255

ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc ggg tcc 815
 Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser
 260 265 270

acg agc tgc cca cgt cct ctc cag gag ggg aca ccg ggt tca cga gct 863
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 275 280 285

gcc cac gca ctt tcc agg aag gga ccc cgg gtt cag gtc tcc tgc cgg 911
 Ala His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg
 290 295 300

ccc aca tcg tgc ctt tgt gta aat cag aag aaa gat gag gaa cag gcc 959
 Pro Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala
 305 310 315

ctc ctc tct ctc cag gca ggc ttt ggt gga ggg gct gga tct cct gcc 1007
 Leu Leu Ser Leu Gln Ala Gly Phe Gly Gly Gly Ala Gly Ser Pro Ala
 320 325 330 335

gca cct tcc ctg gca ggg cac cct gtg ctt gag ccc cag aac tgc agg 1055
 Ala Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg
 340 345 350

cgg ccg gca gag aag ggg tcc atg atg gcg cct cgg tgc gca gcc ttg 1103
 Arg Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu
 355 360 365

gac ctg ccc cca tgg acc tgg atg cca gtg atg cct gag gtc tgc agg 1151
 Asp Leu Pro Pro Trp Thr Trp Met Pro Val Met Pro Glu Val Cys Arg
 370 375 380

gca gtg cat acg ctc acc gcc tgg ccg ctc agg agc ctg tgc ttg acc 1199
 Ala Val His Thr Leu Thr Ala Trp Pro Leu Arg Ser Leu Cys Leu Thr
 385 390 395

ccc aaa tcc gcc ccc caa ctc cct gtt acc ggc tca ctc ctt cca 1244
 Pro Lys Ser Ala Pro Gln Leu Pro Val Thr Gly Ser Leu Leu Pro
 400 405 410

tgaggggcct tccccaggga cagccgatgc tctcctgatg gctcctgccc ttgcagagtg 1304

ctgccccgcg ctgccccact ggcctggacc ctgcctgag cccctcagg gctctgcgcc 1364

acctcaaccc aggcgtttgt tccgcaggaa cctcccggct cttcccactc gggaaaggaa 1424

ggctctgggc atggaggtcg gccaggcccc atccccgtac cctggccctt cttcctgctt 1484

cctgtttgtc actgccccgg ggcctttgca cctgcattcc ctctctctgt gaggtcctg 1544

gggcccggtta cccacgtcac cgtcccagga taccttttct tttctttctc tctctccagc 1604

tttattgagg tatagttgac aattcaggac ggtgtgcact caaggtatgc agcatcacia 1664

cctgacacac gtaggcattg tgaaatgagt cccacaattg ggctaattaa cacacccatc 1724
 accttacatg gttacttctt tctgtggtga gaacactaaa ttttaaatag aggacacaca 1784
 gcctgggcaa catagtgaga ccctgtctct acaaataaa aaaaattatc tggacgtggt 1844
 ggtgcacacc tgtggtccca gctacttggg aagctgagggc tggagaatca cttgagcctg 1904
 ggaggcggag gttgcggtgc actccagcct gggcgacaga gggaggccct atctcaaat 1964
 aaataaataa aggacacatt cttatcaaaa aaaaaaaaaa aaaaaa 2010

<210> 9
 <211> 414
 <212> PRT
 <213> Homo sapiens

<400> 9
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 1 5 10 15
 Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro Arg
 20 25 30
 Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Ser Ser Ala
 35 40 45
 Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly
 50 55 60
 Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Arg
 65 70 75 80
 Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser Thr
 85 90 95
 Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 100 105 110
 His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Pro
 115 120 125
 Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu Gln
 130 135 140
 Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly Asp
 145 150 155 160
 Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly Ser
 165 170 175
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu Leu
 180 185 190
 Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg
 195 200 205

Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser
 210 215 220
 Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Gly
 225 230 235 240
 Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro
 245 250 255
 Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser Thr
 260 265 270
 Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 275 280 285
 His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg Pro
 290 295 300
 Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala Leu
 305 310 315 320
 Leu Ser Leu Gln Ala Gly Phe Gly Gly Gly Ala Gly Ser Pro Ala Ala
 325 330 335
 Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg Arg
 340 345 350
 Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu Asp
 355 360 365
 Leu Pro Pro Trp Thr Trp Met Pro Val Met Pro Glu Val Cys Arg Ala
 370 375 380
 Val His Thr Leu Thr Ala Trp Pro Leu Arg Ser Leu Cys Leu Thr Pro
 385 390 395 400
 Lys Ser Ala Pro Gln Leu Pro Val Thr Gly Ser Leu Leu Pro
 405 410

<210> 10
 <211> 1744
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (3)..(1349)

<400> 10 47
 tc acg agc tgc cca cgt cct ctc cag gaa ggg acc ccg ggt tca cga
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg 15
 1 5 10
 gct gcc cac gtc gtc tcc agg aag gga ccc ggg tcc acg agc tgc cca 95
 Ala Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro 20 25 30

cgt cct ctc cag gaa agg acc cgg gtc cac gag ctg gcc acg tcc tct 143
 Arg Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Ser Ser
 35 40 45

gca gga agg gac ccc ggg tcc acg agc tgc cca cgt cct ctc cag gaa 191
 Ala Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu
 50 55 60

ggg acc ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc 239
 Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro
 65 70 75

cgg gtc cac gag ctg ccc acg tcc tct cca gga agg gac ccc ggg tcc 287
 Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser
 80 85 90 95

acg aac tgc cca cgt cct ctc cag gaa ggg acc ccg ggt tca cga gct 335
 Thr Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 100 105 110

gcc cac gtc ctc tcc agg agg gga cac cgg gtt cac gag ctg ccc acg 383
 Ala His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr
 115 120 125

ccc tct cca gga agg gac ccc ggg ttc atg agc tgc cca cgt cct ctc 431
 Pro Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu
 130 135 140

cag gaa ggg acc cgg gtc cac gaa ctg ccc acg ccc tct cca gga ggg 479
 Gln Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly
 145 150 155

gac ccg ggt cca cga gct gcc cac gtc gtc aac ggg aag gga ccc ggg 527
 Asp Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly
 160 165 170 175

tcc acg agc tgc cca cgt cct ctc cag gaa ggg acc cgg gtc cac gaa 575
 Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu
 180 185 190

ctg ccc acg cgc tct cca gga ggg gac acc ggg ttc acg agc tgc cca 623
 Leu Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro
 195 200 205

cgc cct ctc cag gaa ggg acc ccg ggt tca cga gct gcc cac gtc ctc 671
 Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu
 210 215 220

tcc agg agg gga cac cgg gtt cac gag ctg ccc acg tcc tct cca gga 719
 Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly
 225 230 235

ggg gac acc ggg ttc acg agc tgc cca cgc cct ctc cag gag ggg aca 767
 Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr
 240 245 250 255

ccg ggt tca cga gct gcc cac gtc ctc tcc agg aag gga ccc ggg tcc 815
 Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser
 260 265 270

acg agc tgc cca cgt cct ctc cag gag ggg aca ccg ggt tca cga gct 863
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
 275 280 285

gcc cac gca ctt tcc agg aag gga ccc cgg gtt cag gtc tcc tgc cgg 911
 Ala His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg
 290 295 300

ccc aca tcg tgc ctt tgt gta aat cag aag aaa gat gag gaa cag gcc 959
 Pro Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala
 305 310 315

ctc ctc tct ctc cag gca ggc ttt ggt gga ggg gct gga tct cct gcc 1007
 Leu Leu Ser Leu Gln Ala Gly Phe Gly Gly Ala Gly Ser Pro Ala
 320 325 330 335

gca cct tcc ctg gca ggg cac cct gtg ctt gag ccc cag aac tgc agg 1055
 Ala Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg
 340 345 350

cgg ccg gca gag aag ggg tcc atg atg gcg cct cgg tgc gca gcc ttg 1103
 Arg Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu
 355 360 365

gac ctg ccc cca tgg acc tgg gaa cct ccc ggc tct tcc cac tcg gga 1151
 Asp Leu Pro Pro Trp Thr Trp Glu Pro Pro Gly Ser Ser His Ser Gly
 370 375 380

aag gaa ggc tct ggg cat gga ggt cgg cca ggc ccc atc ccc gta ccc 1199
 Lys Glu Gly Ser Gly His Gly Gly Arg Pro Gly Pro Ile Pro Val Pro
 385 390 395

tgg ccc ttc ttc ctg ctt cct gtt tgt cac tgc ccc ggg gcc ttt gca 1247
 Trp Pro Phe Phe Leu Leu Pro Val Cys His Cys Pro Gly Ala Phe Ala
 400 405 410 415

cct gca ttc cct ctc tct gtg agt gtc ctg ggg ccc gtt acc cac gtc 1295
 Pro Ala Phe Pro Leu Ser Val Ser Val Leu Gly Pro Val Thr His Val
 420 425 430

acc gtc cca gga tac ctt ttc ttt tct ttc tct ctc tcc agc ttt att 1343
 Thr Val Pro Gly Tyr Leu Phe Phe Ser Phe Ser Leu Ser Ser Phe Ile
 435 440 445

gag gta tagttgacaa ttcaggacgg tgtgcactca aggtatgcag catcacaacc 1399
 Glu Val

tgacacacgt aggcattgtg aaatgagtcc cacaattggg ctaattaaca caccatcac 1459

cttacatggt tacttctttc tgtggtgaga acactaaatt ttaaataagag gacacacagc 1519

ctgggcaaca tagtgagacc ctgtctctac aaatataaaa aaattatctg gacgtgggtgg 1579

tgacacacctg tgggtcccagc tacttgggaa gctgaggctg gagaatcact tgagcctggg 1639

aggcggaggt tgcggtgcac tccagcctgg ggcacagagg gaggcctat ctcaaaataa 1699
 ataaataaag gacacattct tatcaaaaaa aaaaaaaaaa aaaaa 1744

<210> 11
 <211> 449
 <212> PRT
 <213> Homo sapiens

<400> 11
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala
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 Ala His Val Val Ser Arg Lys Gly Pro Gly Ser Thr Ser Cys Pro Arg
 20 25 30
 Pro Leu Gln Glu Arg Thr Arg Val His Glu Leu Ala Thr Ser Ser Ala
 35 40 45
 Gly Arg Asp Pro Gly Ser Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly
 50 55 60
 Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Arg
 65 70 75 80
 Val His Glu Leu Pro Thr Ser Ser Pro Gly Arg Asp Pro Gly Ser Thr
 85 90 95
 Asn Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 100 105 110
 His Val Leu Ser Arg Arg Gly His Arg Val His Glu Leu Pro Thr Pro
 115 120 125
 Ser Pro Gly Arg Asp Pro Gly Phe Met Ser Cys Pro Arg Pro Leu Gln
 130 135 140
 Glu Gly Thr Arg Val His Glu Leu Pro Thr Pro Ser Pro Gly Gly Asp
 145 150 155 160
 Pro Gly Pro Arg Ala Ala His Val Val Asn Gly Lys Gly Pro Gly Ser
 165 170 175
 Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Arg Val His Glu Leu
 180 185 190
 Pro Thr Arg Ser Pro Gly Gly Asp Thr Gly Phe Thr Ser Cys Pro Arg
 195 200 205
 Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala His Val Leu Ser
 210 215 220
 Arg Arg Gly His Arg Val His Glu Leu Pro Thr Ser Ser Pro Gly Gly
 225 230 235 240

Asp Thr Gly Phe Thr Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro
 245 250 255
 Gly Ser Arg Ala Ala His Val Leu Ser Arg Lys Gly Pro Gly Ser Thr
 260 265 270
 Ser Cys Pro Arg Pro Leu Gln Glu Gly Thr Pro Gly Ser Arg Ala Ala
 275 280 285
 His Ala Leu Ser Arg Lys Gly Pro Arg Val Gln Val Ser Cys Arg Pro
 290 295 300
 Thr Ser Cys Leu Cys Val Asn Gln Lys Lys Asp Glu Glu Gln Ala Leu
 305 310 315 320
 Leu Ser Leu Gln Ala Gly Phe Gly Gly Gly Ala Gly Ser Pro Ala Ala
 325 330 335
 Pro Ser Leu Ala Gly His Pro Val Leu Glu Pro Gln Asn Cys Arg Arg
 340 345 350
 Pro Ala Glu Lys Gly Ser Met Met Ala Pro Arg Cys Ala Ala Leu Asp
 355 360 365
 Leu Pro Pro Trp Thr Trp Glu Pro Pro Gly Ser Ser His Ser Gly Lys
 370 375 380
 Glu Gly Ser Gly His Gly Gly Arg Pro Gly Pro Ile Pro Val Pro Trp
 385 390 395 400
 Pro Phe Phe Leu Leu Pro Val Cys His Cys Pro Gly Ala Phe Ala Pro
 405 410 415
 Ala Phe Pro Leu Ser Val Ser Val Leu Gly Pro Val Thr His Val Thr
 420 425 430
 Val Pro Gly Tyr Leu Phe Phe Ser Phe Ser Leu Ser Ser Phe Ile Glu
 435 440 445
 Val

<210> 12
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 12
 gtagtaacag aatggacttt ga

<210> 13
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 13
 agagaggaac agcatcaaag tc 22

<210> 14
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 14
 caaacagggt ccaccgtgga aa 22

<210> 15
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 15
 gtgtttcagc cacatttcca cg 22

<210> 16
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 16
 atccaccgct agaaaccac tc 22

<210> 17
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 17
 gaccatcaac tgatgagtgg gt 22

<210> 18
 <211> 22

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 18
 tcatgggggt gctttgacct tg 22

<210> 19
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 19
 tggcctcaaa ggctcaagggt ca 22

<210> 20
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 20
 tgtaggacta tattgctc 18

<210> 21
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 21
 cgacatttag gtgacact 18

<210> 22
 <211> 15
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic adapter
 oligonucleotide

<400> 22
 gtcttcacca cgggg 15

<210> 23
 <211> 11
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic adapter
 oligonucleotide

<400> 23
 gtggtgaaga c 11

<210> 24
 <211> 18
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 24
 gcccttaggg agagcagc 18

<210> 25
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 25
 ccacatcggtg cctttgtgta 20

<210> 26
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 26
 cactgtgtta aaacgcctgg 20

<210> 27
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 27
gttgggatta caggcacgag

20

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 28
cagaagcaac ccacatgacc

20

<210> 29
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 29
actacaggtt tgcaccacca

20

<210> 30
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 30
atgctctcct gatggctcct

20

<210> 31
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Primer

<400> 31
agggaatgca ggtgcaaag

19

<210> 32
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 32
 actcgggaaa ggaaggctct 20

<210> 33
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 33
 cataccttga gtgcacaccg 20

<210> 34
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 34
 gacagtctgc tccacatcca 20

<210> 35
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 35
 tggagatgaa gtcttgctct tg 22

<210> 36
 <211> 20
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 36
 atatgtttgc tggctttggg 20

<210> 37
 <211> 20

<212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Primer

<400> 37
 cccaggctgt gtgtcctcta

20

<210> 38
 <211> 1124
 <212> DNA
 <213> Homo sapiens

<400> 38
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 tctccaggaa gggacccggg tccacgagct gcccacgtcc tctccaggaa aggacccggg 120
 tccacgagct gggacacgtcc tctgcaggaa gggaccccggtg gtccacgagc tgcccacgtc 180
 ctctccagga agggaccccg ggttcacgag ctgcccacgt cctctccagg aaggggacccc 240
 ggggtccacga gctgcccacg tcctctccag gaagggaacc cgggtccacg aactgcccac 300
 gtctcttcca ggaagggaacc ccgggttcac gagctgccc cgtcctctcc aggaggggac 360
 accgggttca cgagctgccc acgcccctct caggaaggga ccccgggttc atgagctgcc 420
 cacgtcctct ccaggaaggg acccggttcc acgaactgcc cagcccctct ccaggagggg 480
 acccggttcc acgagctgcc cagctcgtca acgggaaggg acccggttcc acgagctgcc 540
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 acacgggtt cagcagctgc ccacgcctc tccaggaagg gaccccggtt tcacgagctg 660
 cccacgtcct ctccaggagg ggacacccgg ttcacgagct gcccacgtcc tctccaggag 720
 gggacacccg gttcacgagc tgcccacgcc ctctccagga ggggacaccc ggttcacgag 780
 ctgcccacgt cctctccagg aagggacccg ggtccacgag ctgcccacgt cctctccagg 840
 aggggacacc ggggttcacga gctgcccacg cactttccag gaagggaacc cgggttcagg 900
 tctcctgccg gcccacatcg tgctttgtg taaatcagaa gaaagatgag gaacaggccc 960
 tcctctctct ccaggcaggc tttgggtggag gggctggatc tcctgccgca ccttccctgg 1020
 cagggcaccc tgtgcttgag ccccgagaact gcaggcggcc ggcagagaag ggggtccatga 1080
 tggcgccctg gtgcgcagcc ttggacctgc ccccatggac ctgg 1124

<210> 39
 <211> 289
 <212> DNA
 <213> Homo sapiens

<400> 39
 agacagggtt tctcctcatt ggccaggctg gtctcgaact cctgacctca gacgatccac 60
 ctgcctcagc ctcccgaagt gttgggatta caggcagcag ccactgtgcc cggccatcat 120
 tcctttttac tgctgactaa tagtctgctg tgtgaatcca ccgctagaaa cccactcatc 180
 agttgatggg catgtgggtt gcttctgcta ttcgcttatt atgaacagtg ctggaataaa 240
 cgttcctgtg cactcttggg catacgcta ggagtggaaac tgctgggtc 289

<210> 40
 <211> 139
 <212> DNA
 <213> Homo sapiens

<400> 40
 gaacctcccg gctcttccca ctccggaaag gaaggctctg ggcattggagg tcggccaggc 60
 cccatccccc taccctggcc cttcttctct ctctctgttt gtcactgcc cgggagcctt 120

gcacctgcat tccctctct

139

<210> 41
<211> 49
<212> DNA
<213> Homo sapiens

<400> 41
gaacctccccg gctcttccca ctcgggaaag gaaggctctg ggcattggag

49

<210> 42
<211> 866
<212> DNA
<213> Homo sapiens

<400> 42
atgccagtga tgcctgaggt ctgcagggca gtgcatacgc tcaccgcctg gccgctcagg 60
agcctgtgct tgacccccaa atccgcccc caactccctg ttaccggctc actccttcca 120
tgagggggcct tccccaggga cagccgatgc tctcctgatg gctcctgccc ttgcagagtg 180
ctgccccgcg ctgcccacct ggcctggacc ctgcctgag cccctcagg gctctgcgcc 240
acctcaaccc aggcgtttgt tccgcaggaa cctcccggt cttccactc gggaaaggaa 300
ggctctgggc atggaggtcg gccaggcccc atccccgtac cctggccctt ctctctctgt 360
cctgtttgtc actgccccgg ggcctttgca cctgcattcc ctctctctgt gagggtcctg 420
gggcccgtta cccacgtcac cgtcccagga taccttttct tttctttctc tctctccagc 480
tttattgagg tatagttgac aattcaggac ggtgtgcact caaggatgc agcatcaca 540
cctgacacac gtaggcattg tgaaatgagt cccacaattg ggctaattaa cacacccatc 600
accttacatg gttacttctt tctgtggtga gaactactaa ttttaaatag aggacacaca 660
gcctgggcaa catagtgaga ccctgtctct acaaatataa aaaaattatc tggagctggg 720
ggtgcacacc tgtggtccca gctacttggg aagctgaggc tggagaatca cttgagcctg 780
ggaggcgag gttgcggtgc actccagcct gggcgacaga gggaggccct atctcaaaat 840
aaataaataa aggacacatt cttatc 866

<210> 43
<211> 387
<212> DNA
<213> Homo sapiens

<400> 43
ctttattgag gtatagttga caattcagga cgggtgtgcac tcaaggatatg cagcatcaca 60
acctgacaca cgtaggcatt gtgaaatgag tcccacaatt gggctaatta acacacccat 120
caccttacat gggtacttct ttctgtggtg agaactactaa attttaaata gaggacacac 180
agcctgggca acatagtgag accctgtctc tacaaatata aaaaaattat ctggacgtgg 240
tggtgcacac ctgtggtccc agctacttgg gaagctgagg ctggagaatc acttgagcct 300
gggaggcgga ggttgcggtg cactccagcc tggcgacaga agggaggccc tatctcaaaa 360
taaataaata aaggacacat tcttatc 387

<210> 44
<211> 599
<212> DNA
<213> Homo sapiens

<400> 44
gaacctccccg gctcttccca ctcgggaaag gaaggctctg ggcattggag tgggccaggc 60
cccatccccg taccctggcc cttcttctctg cttcctgttt gtcactgccc cggggccttt 120

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gcacctgcat tccctctctc tgtgagtgtc ctggggcccg ttaccacagt caccgtcca 180
ggataccttt tcttttcttt ctctctctcc agctttattg aggtatagtt gacaattcag 240
gacgggtgtgc actcaaggta tgcagcatca caacctgaca cacgtaggca ttgtgaaatg 300
agtcccacaa ttgggctaata taacacaccc atcaccttac atggttactt ctttctgtgg 360
tgagaacact aaatttttaa tagaggacac acagcctggg caacatagtg agaccctgtc 420
tctacaaata taaaaaaatt atctggacgt ggtgggtgcac acctgtggtc ccagctactt 480
gggaagctga ggctggagaa tcacttgagc ctgggaggcg gaggttgagg tgcactccag 540
cctgggagac agagggaggc cctatctcaa aataaataaa taaaggacac attcttattc 599

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<210> 45
<211> 1028
<212> DNA
<213> Homo sapiens

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<220>
<221> modified_base
<222> (267)
<223> a, t, c or g

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<400> 45
cgggcgtgta tatctcttca tagagagcgc tcagacagcg tgcgttaatc tgcgtcgata 60
tatagagatc tttatcactg agtagataga acgtacatga atgtacgaac agtccagacg 120
agtaacttga ctaggataag atagacagta ccaactaatg agacaagaag agggaaatcat 180
atagaatcat gtatgtctgag tctagcgagt gtcgacatga tcacaagcga aatacagact 240
atgagaagag gttagaaataa taagtanact gagaagagag gtcatatgta catacaaatc 300
agtaaagcaa tagaaattga atacattata agccacagtt acagaattag cctaatttaa 360
caacatggc aagcgagtta tatcaaacat agaagagtaa actctatcga ccatgggtag 420
gaacgaataa aggcgtcgag aagacaataa gaatgcgtgt taaacagcaa tacaagagaa 480
tagcaccact gaagcagacc aaaggcgtca ccggggaagt aggggaagagg cacctcaca 540
ggagaggaaa gggcagtcct gattttgaaa atttcagtga aaagacagtg ttgttccgg 600
aggcagctta gtgatcccg atcgactctg aagaggaccc tgagggtagg ggatttttgg 660
gcctgaccgg cctatgctga acgcccaccg ggaattcagg gagaaacacg gggcccggc 720
ttccaggaga gcagccaggc cacagccctg aggacgggca aaccccaccc aggcacgggtg 780
agagggaggc cgcccaggcc tggggcctgg cggcagggga tgaagtggac cagagccccg 840
caaatacctaa cgtgggtgag cagtgcagct gtgtggctgc gactggctcc gttttggggc 900
tgtttgttcc tgcagcaaat gatgccagcc ctgacgggaa cagtgcacgt ccaccacgag 960
ctgcccacgt cctctccagg aagggacccg ggtccacgag ctgcccacgt cctctccagg 1020
aagggacc 1028

```

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<210> 46
<211> 40
<212> DNA
<213> Homo sapiens

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<400> 46
actacagggt tgcaccacca tgcctgcta attttttttt 40

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```

<210> 47
<211> 40
<212> DNA
<213> Homo sapiens

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<400> 47
actacagggt tgcaccaccg tgcctgcta attttttttt 40

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<210> 48
<211> 39
<212> DNA
<213> Homo sapiens

<400> 48
tgtgcactct tgggcatacg cctaggagtg gaactgctg 39

<210> 49
<211> 39
<212> DNA
<213> Homo sapiens

<400> 49
tgtgcactct tgggcatatg cctaggagtg gaactgctg 39

<210> 50
<211> 39
<212> DNA
<213> Homo sapiens

<400> 50
gggctctgcg ccacctcaac ccaggcgttt gttccgcag 39

<210> 51
<211> 39
<212> DNA
<213> Homo sapiens

<400> 51
gggctctgcg ccacctcaac tcaggcgttt gttccgcag 39